Understanding spatial meaning:
Reading technique in phenomenological terms

Abstract

In Phenomenology of Perception*, Maurice Merleau-Ponty notes that phenomenology is concerned with providing a direct description of human experience, in such way that perception is the background of experience with guides each conscious action. This work reflects the idea that perception may be structured and focused by attention. Attention may not create spatial perceptions, but may be directed towards the perception of architectural embodied spaces and thus enable architectural technique (and so architecture) to convey meaning. This research engages technique in the architectural creative process and studies the relationship between building technique and the resulting architectural body, from the point of view of spatial expression and meaning. Thus, the fundamental constructive forms defined by Gottfried Semper are studied in phenomenological terms, prior to introduce the genuine tectonic changes introduced by innovative constructive elements. The work concludes explaining how these tectonic changes challenge the traditional division into nucleus and cladding. The architectural expression that G. Semper conferred on the cladding can now be achieved by other means.*

Author biography

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Introduction: spatial perception and architecture

Merleau-Ponty defended that theory had failed to describe and explain perception, mainly due to two traditional prejudices: *empiricism* and *intellectualism* [1]. The return to phenomena is intended to overcome these prejudices and remove the distortions of perception. Empiriscism would ignore the integrity of perception (where the whole gets priority over the parts) and intellectualism would emphasize the role of the perceiving subject in such way that all perceptual experience would involve judgement (thus detaching the perceiving subject from the world that it perceives, juxtaposing it with the world as a distinct region of being, and granting it a priority over the world). On the other hand, phenomenology reverses this priority by recognizing that the world exists prior to any analysis or act of consciousness. Phenomenology (or the return to phenomena) would reveal the unity of consciousness,

embodiment and the world made manifest through our embodied experience, in such way that perception, as our pre-reflective openness to the world, becomes the background of experience with guides each conscious action. Finally, the idea of a single unified space open to a detached intellect would be replaced by the idea of a space consisting of various regions and with privileged directions that are closely related to our distinctive bodily features and our situation as beings [2]; that is, perception may be structured and focused by attention and although attention may not create spatial perceptions, it may be directed towards the perception of spaces. Within the scope of phenomenology, this work is based on Merleau-Ponty's idea of integrity of spatial perception, the idea of a space with various regions or parts that are not independent but connected to each other and to the whole.

The technical dimension of the architectural analysis: tectonics of the frame and compressive mass

This understanding of architectural space as a whole takes us to consider different but unified aspects [3] that belong to three basic dimensions (and their relationships): purpose, form and technology. Technology establishes a set of construction principles which are independent of any particular project but remain unrelated and meaningless without the guidance of the spatial concept (where purpose and form are included), and for that reason they are all incorporated in the theory concept *tectonics*. Architectural space has a volumetric quality, but it is necessarily achieved by constructional and structural means. In this context, the term *tectonic* serves to understand why architecture derives from some other reasoning. Over the course of history, the presentation and representation of architectural spaces as built bodies has always proved essential to our perception of spaces and the understanding of their meaning.

The role of the construction principles or system is as important as those of the purpose of the building or its form. If the construction system is massive (mass construction), its elements are more or less isotropic and are both loadbearing and enclosing. In the other hand, a skeletal system is a structure of slender linear members defined by its distinction between loadbearing and enclosing functions. These two systems relate to the architectural theory concepts stereotomy of compressive mass and tectonics of the frame respectively, which were defined by Gottfried Semper [4] as the two different material procedures to divide the built form. They described the fundamental structural and constructive form of architecture and their principles evoked different meanings to the perceiver.

A skeletal system or frame is a structure of slender rod-like members assembled to form a two- or three-dimensional composition in which the loadbearing and enclosing functions are fulfilled by different elements. The linear members are erected first and then the spaces between them have to be filled in to create surfaces. Here, the relationship between the internal and external space is achieved not by the structure itself but by non load-bearing elements. The filling becomes an active element in the overall spatial conception. Since framework and filling tend to be made from different materials, the logical conception of a frame construction leads naturally to formal articulation or contrast, allowing clear symbolic expression of the two elements. The non-loadbearing filling carried the symbolism of non-participation through history, at the same time that it could give the loadbearing frame an extra-structural purpose (or functional purpose) as focal element. While the frame and the filling enclose an interior, the functional (or extra-structural) purpose of a frame is defining an interior, and the arrangement of its parts is rhythmic with regard to this purpose.

The stereotomy or tectonics of compressive mass is the second material procedure described by Semper [4] and refers to solid construction. Solid construction is made up by casting a material that solidifies upon drying or with layers of modular materials. (Even though the most common materials have been brick, stone and concrete, mass construction is also a possibility with solid wood, where identical units are piled up constructing the built form.) In stereotomy, solid walls are erected and perforated during the building process to create openings, in such way that the openness of the interior spaces with respect to each other and also to the exterior space is greatly restricted. This is how space is created and enclosed, appearing to be permanent, inflexible and rigid. Also, although compressive mass systems can be divided into many identically or similarly shaped pieces, these are unarticulated because their function is basically (structurally and mechanically) the same. This is a clear difference with the tectonics of the frame, where different kinds of activity resulted in articulation of the different elements (i.e. columns, beams or filling).

Tectonic changes and new challenges to spatial perception

The architectural theory concepts stereotomy and tectonics are fundamental in morphological and phenomenological terms. If the point of view to study architecture considers the tectonic form in different cultures, we can find that where different cultures had

access to similar resources of materials, they developed very similar forms of building more or less independently of each other. For this reason, theoreticians that followed Semper drew the conclusion that stereotomy and tectonics were suitable for describing the fundamental structural and constructive form of architecture and for demonstrating the principles of the origin and evolution of the architectural form. The development of building techniques and technology may concern only the optimization and refinement of the production and processing methods (workmanship, industrial production process) and therefore the products (the building materials). This explainins why new materials not necessarily release a genuine tectonic change but lead to material transformations and hybrid tectonic forms. In other words, it explains why mass construction and skeletal construction represented opposite sides of the building industry's possibilities since they became established as man built his first shelters. (For instance, the structural and tectonic logic of steelwork is similar to that of timber frame construction.) So far, these two concepts (solid construction –stereotomy –and frame construction –tectonics) designated the two archetypal construction systems, and all the subsequent forms of construction were derived from them.

A third archetypal constructive system is based on the panel. Although panels are not new to architecture, concrete panels or slabs require that every step in a surface needs its own pour (casting), thus increasing the cost and labour involved. The new panels produced by modern timber technology (which can span in any planar direction) are those made from timber by-products whose structure within the plane of the panel tends to be isotropic (such as cross-laminated timber panels, for example) and makes them directionally neutral, extendable in all directions and without any recognizable internal hierarchy. Thus the panel becomes directionally neutral or indifferent to direction [5]. Structurally speaking, panels carry different functions (load-bearing, bracing…) but not only is the structural behaviour modified, but their physical perception too because they do not show a structural hierarchy of primary and secondary elements: panels are joined together without a hierarchy that articulates their formal expression. Timber panels are also synthetic elements: multifunctional from both a structural and a constructive point of view. Modern prefabricated panels solve problems of structure, building physics, weather protection and finishing, and at the same time simplify (reduce) the layered make-up of the element and challenge the traditional tectonic form based on nucleus and cladding. All these qualities can be considered not just innovative contributions to architecture but authentic tectonic changes.

Conclusion

This work is based on Merleau-Ponty's idea of integrity of spatial perception, the idea of a space with various regions or parts that are not independent but connected to each other and to the whole. The presentation of architectural spaces as built form has always proved essential to our perception of spaces and the understanding of their meaning.

The architectural theory concepts stereotomy of compressive mass and tectonics of the frame were so far the two different material procedures to divide the built form.

A third material procedure of the built form is based on the assembly of panels and joins the multifunctional aspect of the tectonics of the compressive mass and the flexibility of the framework.

This new material procedure challenges the traditional division into nucleus and cladding. The architectural expression that G. Semper conferred on the cladding can now be achieved by synthetic prefabricated panels, thus eliminating the dichotomy between nucleus and cladding.

Endnotes

[1] David R. Cerbone, *Perception* in *Merleau-Ponty, key concepts*, Diprose, R.; Reynolds, J. (Ed). (Acumen, 2008)

[2] Maurice Merleau-Ponty, *The world of perception.* (Routledge, 2004)

[3] Christian Norberg-Schulz, *Intenciones en Arquitectura*, GG Reprints. (Editorial Gustavo Gili, SA. Barcelona –Mexico 1998)

[4] Gotfried Semper, *The Four Elements of Architecture and other writings*. (Cambridge University Press, 1989)

[5] Deplazes, A., "Wood: indifferent, synthetic, abstract – man-made", *Werk, bauen + wohnen* no. 1-2 (2001): 78-81